

REMARKS

In response to the above-identified Office Action, Applicant amends the application and seek reconsideration thereof. In this response, Claims 1 and 8-12 have been amended, Claim 7 has been cancelled, no claims have been added. Accordingly, Claims 1-6 and 8-13 are pending.

The instant application is directed to a method for measuring a bone mineral density, by use of an X-ray image, in a bone mineral measuring system, comprising the steps of obtaining an X-ray image of bone, setting a region of interest on the obtained X-ray image of bone, calculating a background trend due to soft tissues, at a bone portion within the set region of interest, and calculating an index of the bone mineral density by removing the background trend due to the soft tissues, at the bone portion within the set region of interest.

I. Claim Amendments

Applicant respectfully submits herewith the attached Amendments to the Claims in which Claims 1 and 8-12 have been amended. Claims 1 and 12 have been amended to include the limitations of the allowable subject matter of cancelled Claim 7 except for those contained in Claim 3. Claims 8-11 have been amended to depend from Claim 1 instead of cancelled Claim 7. No new matter is added and the claims are supported by the specification. In view of the foregoing, Applicant respectfully requests consideration and entry of the attached amendments.

II. Claims Rejected Under 35 U.S.C. §102(b)

The Examiner finally rejects Claims 1, 2 and 12 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,602,935 to Yoshida, et al. ("Yoshida"). Applicant respectfully traverses the rejection for at least the following reasons.

To anticipate a claim, the relied upon reference must disclose every limitation of the claim. In regard to Claims 1 and 12, Applicant respectfully submits Yoshida fails to teach at least the elements of "(e) calculating an average value (<G>) of gray-level values at the bone portion after the background trend was removed, (f) calculating a

weighted average (P) of the bone widths within the region of interest, and (g) calculating an index of the bone mineral density by adding a value of the weighted average (P) multiplied by a specific constant (c_0) to the average value ($\langle G \rangle$), at the bone portion within the set region of interest" as recited in amended Claims 1 and 12.

The Examiner admits in the Action Yoshida is silent with regard to the soft tissue being presented in gray-level profiles. See Action, pages 6. Yoshida's failure to teach gray-level profiles necessarily prevents Yoshida from teaching the above-referenced calculation for setting an index of the bone mineral density since one of the factors of the calculation is the averaged value of the gray-level. Yoshida's failure in this regard is further evidenced by the fact that Claim 7 depends from Claims 1 and 3 and adds the elements now incorporated into amended Claims 1 and 12 of calculating an average value ($\langle G \rangle$) of gray-level values at the bone portion after the background trend is removed, calculating a weighted average (P) of the bone widths within the region of interest, and calculating an index of the bone mineral density by adding a value of the weighted average (P) multiplied by a specific constant (c_0) to the average value ($\langle G \rangle$), at the bone portion within the set region of interest. The Examiner indicates in the Action Claim 7 would be allowable over the references if rewritten in independent form to include the limitations of Claims 1 and 3. The Examiner, however, rejects Claims 1 and 3 over the references. Claims 3 and 7 add further limitations to different steps of Claim 1. In particular, Claim 3 adds further limitations to step (c) of Claim 1 and Claim 7 adds further limitations to step (d) of Claim 1. In this connection, the Examiner's rejection of Claim 3 and allowance of Claim 7 if rewritten in independent form, suggests these additional limitations to step (d), recited by now cancelled Claim 7 and incorporated into amended Claims 1 and 12, are not taught by Yoshida.

Thus, for at least the foregoing reasons, Yoshida does not teach or suggest all the elements of amended Claims 1 and 12. Since Yoshida fails to teach or suggest each element of Claims 1 and 12, anticipation may not be found. Accordingly, Applicant respectfully request withdrawal of the final rejection of independent Claims 1 and 12.

In regard to Claim 2, Claim 2 depends from Claim 1 and incorporates the limitations thereof. Thus, for at least the reasons mentioned above in regard to Claim 1, Yoshida fails to teach or suggest all the elements of Claim 2 therefore anticipation may not be found. Applicant respectfully requests withdrawal of the final rejection of Claim 2.

III. Claims Rejected Under 35 U.S.C. §103(a)

The Examiner finally rejects Claims 3-5 and 13 under 35 U.S.C. 103(a) as being obvious over Yoshida and U.S. Patent No. 6,671,394 to Sako ("Sako"). Applicant respectfully traverses the rejection.

To render a claim obvious, the relied upon references must teach or suggest every limitation of the claim such that the invention as a whole would have been obvious at the time the invention was made to one skilled in the art. Claims 3-5 and 13 depend from Claims 1 and 12, respectively, and incorporate the limitations thereof. Thus, for at least the reasons discussed in regard to the traversal of Claims 1 and 12, Yoshida fails to teach or suggest the elements of "(e) calculating an average value (<G>) of gray-level values at the bone portion after the background trend was removed, (f) calculating a weighted average (P) of the bone widths within the region of interest, and (g) calculating an index of the bone mineral density by adding a value of the weighted average (P) multiplied by a specific constant (c_0) to the average value (<G>), at the bone portion within the set region of interest" as found in Claims 3-5 and 13.

Applicant is unable to discern, and the Examiner has not pointed to, any portion of Sako teaching these elements. Since neither Yoshida nor Sako, alone or in combination, teach each and every element of Claims 3-5 and 13, a *prima facie* case of obviousness may not be established. For the foregoing reasons, Applicant respectfully requests withdrawal of the final rejection of Claims 3-5 and 13.

IV. Allowable Subject Matter

Applicants notes with appreciation the Examiner's indication that Claims 6-11 would be allowable if rewritten in independent form to include all of the limitations of the base claims and any intervening claims. Claim 6 depends from Claim 1 and Claims

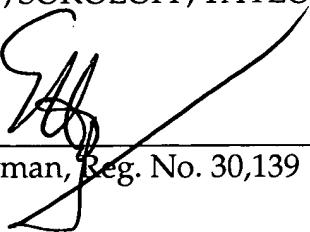
8-11 have been amended to depend from Claim 1 and therefore incorporate the limitations of Claim 1. Claim 1 has been amended to include each of the limitations found within Claim 7 except for those recited in Claim 3. As previously discussed, in light of this amendment to Claim 1, Claim 1 is in condition for allowance. Thus, for at least the reason that Claims 6 and 8-11 depend from an allowable base claim, they are in condition for allowance without rewriting them in independent form as suggested by the Examiner. In view of the foregoing, Applicant respectfully submits Claims 6 and 8-11 are in condition for allowance.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207 3800.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on September 7, 2005.


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